Botanical Gazette.

Vol. VII. JUNE, 1882. No. 6.

Editorial.—The oldest herbarium on record has been found in the form of garlands of dried flowers recently discovered on the breasts of mummies. The flowers are so well preserved that the colors of the petals and the color of the leaves are almost perfect.

Mr. J. G. Lemmon and wife are off again for Arizona. One would have supposed that the experience of their last trip would have sufficed for a lifetime; but as long as a plant remains to be discovered, these intrepid explorers will try to find it.

Prof. F. L. Harvey, of Fayetteville, Ark., writes that the peach trees in that region this spring are producing a great many multiple carpels. In some trees nearly all the flowers have formed multiple fruits, varying from doublets to quadruplets. The freak does not appear to be local, but notices of it are to be seen in the state papers. The trees have not borne for two years and it seems like an effort to make up for lost time.

Miss M. B. Flint, of Brookhaven, Miss., reports finding, April 27th, a full-grown leaf of *Catalpa speciosa* with two midribs. The leaf was of normal shape at base, but above it forked, forming two tips, each one of them slenderly acuminate. If the midribs had been superimposed the leaf would have been the typical form. The growth was on a young seedling and was the only monstrosity the plant showed.

Prof. A. B. Seymour of Ills. Univ., Champaign, writes that near the last of April he found *Ophioglossum vulgatum*, L., growing in wooded bottom lands near the Pine Hills in the most northwest part of Union Co., Ills. Only a single plant has been previously reported in Illinois and that was found in Wabash Co. Professor Seymour counted near fifty plants and there were probably more.

It appears that the genus *Chara* is not all plain sailing. It contains such an inextricable tangle of forms that it is hard to draw lines of classification. In the *American Naturalist* for May, Dr. T. F. Allen describes and figures 9 American "forms" of *C. coronata*, which he does not pretend can be called varieties. It is to be hoped that this devoted student will bring order out of chaos so that others may have the courage to enter the field.

The Torrey Bulletin for April is an unusually full number.

containing quite an elaborate paper on the "Development of the Cortex in Chara" by our chief authority on that group of plants, Dr. T. F. Allen. This paper is accompanied by 8 plates. Another plate illustrates Mr. Joseph Schrenk's note on the "Development of the Root-stock of Dicentra cucullaria." Other notes by Prof. D. C. Eaton, W. W. Bailey, F. Lamson Scribner, Thomas Meehan and others complete the contents of this very interesting number.

ROBERT CLARK & Co., of Cincinnati, propose to publish a periodical to be called "The American Journal of Forestry," as a practical outgrowth of the Forestry Convention recently held in that city. The object is a splendid one, but it appears to us that the majority of the names of the proposed contributors are names much more distinguished in departments having nothing to do with Forestry, just as was the case with the convention referred to. The list contains some splendid names, but many of them are more pretentious than of any actual value.

TOO MUCH CARE can not be given to the careful writing and proof reading of scientific articles. There should the same exactness be demanded in this regard as in the statement of facts. The errors which now creep into our most careful journals are the results either of careless writing or careless proof-reading. Authors can greatly diminish the percentage of errors by writing with perfect plainness, always going on the supposition that the printer is absolutely ignorant of every word and correctness depends upon the distinct formation of every letter. There was a time when all carelessly written manuscripts were copied in this office, but that time has long since past, and authors usually have no one to blame but themselves when mistakes occur in their articles. We are glad to learn that measures are about to be taken by leading naturalists to correct this in the more formal papers submitted for publication, by a more careful examination of them, both in manuscript and proof.

MR. LESTER F. WARD has published a "Guide to the Flora of Washington and Vicinity" as the 26th Bulletin of the U. S. National Museum. It forms a pamphlet of 264 pages, with a large map, and is a most exhaustive affair. It is really an elaboration of an outline presented to the Philosophical Society of Washington last year, and noticed before in these pages. Many useful hints can here be obtained by those preparing local catalogues. Not the least valuable part of the work is the Appendix, in which full directions are given to beginners in the matter of collecting, preserving, arranging, exchanging, etc. The advice in these respects is unusually sensible, and worth following. Ordinarily, the best plan for the beginner is not to read such advice until he has developed his own methods and then he does not need it. It is often as impracticable as it well can be, and there are almost as many ways of collecting, preserving, etc., as there are botanists, and most of them answer the pur-

pose very well. Mr. Ward's advice, however, will not encumber the most precise disposition. The writer must confess that he has about the same feeling in regard to this whole subject as he has expressed in the matter of microscopes. An herbarium, like a microscope, should not be an end, but simply a means to an end, and when it ceases to be that, it becomes a mere toy, like a collection of postage stamps or crockery. It is to be feared that the craze for collecting has infected too many of our botanists whose whole enjoyment of their plants is the miser's enjoyment of his gold. All the collecting that is being done in this country should yield us richer returns of information. Every herbarium, however small, should be a perennial fountain and not a stagnant pool. Mr. Ward enforces well the real object of an herbarium, but that part of his advice will be less heeded than the mechanrical part.

The Leaves of Aquatic Plants.—The leaves of aquatic plants may be divided into 3 classes; aerial, floating and immersed. The first class has stomata on both sides of the leaf; the second, on the upper side only; and the last class has none at all. In the first two, the air can be taken through the stomata directly into the leaf; in the last class, the necessary gases not existing as a body (of air) in the water, there is no use for stomata, which would take up water as well as air. So we have breathing holes in the leaves disconnected from direct contact with water and into which carbon dioxide is absorbed for the use of the plant (Bot. Gaz., Vol. VI. No. 8). These are the well-known intercellular spaces. So we see that it is a natural division.

To the first class belong the leaves of the subaquatic or marsh plants, which root in the water and send their branches into the air, as in *Nasturtium officinale*.

To the next belong the leaves of *Nymphæaceæ*, *Limnanthemum*, *Orontium* and *Marsilea*, raised by petioles to the water surface, also those of *Schollera* and *Callitrichaceæ* (aquatic forms) raised by stems to the same level. The peduncles of some water flowers are also elongated to get to the air.

To the last class belong some *Isoetes*, *Potamogetons*, *Vallisneria*, *Ranunculus divaricatus*, and most *Utricularieæ*.

Some plants combine the second and last classes, having both floating and immersed leaves (some species of *Potamogeton*).

Some, the first and last classes, have both aerial and immersed leaves, as *Nasturtium lacustre* and *Myriophyllum*.

A few plants having stomata (first class), beginning their existence in the water, emerge as the latter dries up.

Plants of the second class, disconnected from the land and often very small, are sometimes matted to keep the stomata-bearing surface upward. This is effected in *Azolla* by its branching habit, in

Wolffia and *Lemna* by the coherence for a time of the proliferous parent to its offspring. The yielding to currents of water is a matter of indifference, unless it be to carry the plant into new food regions, which is certainly not well accomplished in some ponds. The disconnection with the soil keeps the stomata above water in the ever changing level of ponds. This is a matter of prime importance to leaves of the second class. A root that would bind our *Wolffia* to the soil would take many times the material of the plant itself. The same thing is effected in others of this class by long petioles and stems which being pliable allow the leaves to float on the water, for if attached stiffly to the stem the running stream would tilt the leaf towards its downward course, and by being longer than absolutely necessary, it allows the leaf to surmount the rise of a stream as well as to follow it in its fall. The same remarks apply to the pliability of stems which having immersed leaves must still effect the elevation of their supplementary floating (*Potamogeton*) or aerial (*Nasturtium lacustre*) leaves, which would otherwise not perform their functions. Floating leaves are generally entire and simple in form to aid their floating; this is supplemented in *Nymphæa regia* by the raised border of the leaf.

Immersed leaves are long and linear (*Potamogeton*, *Vallisneria*) or divided into coarse or capillary segments. These leaves must remain in the water, since out of it they cannot live and also have no stomata to breathe with. So we find arrangements to keep them in the water as long as there is any; the leaves are flaccid or the stem may be weak, and so they rise and fall with the height of the water (some immersed *Potamogetons* and *Vallisneria*.) The two cases are often correlated in capillary leaves, *Utricularia* and *Ranunculus aquatilis*, var. *trichophyllus*), while in other specimens these leaves may be stiff, depending on the flexible stem entirely (*Nasturtium lacustre* and *Ranunculus aquatilis*, var. *stagnatilis*). Since these plants breathe in the water and the amount of surface exposed is an item for them, we find capillary division abounding among immersed leaves. But while aerial leaves have strong fibers to spread out the leaf to the best possible advantage this is effected in water plants by large air holes in the leaf; this may explain their flaccidness also.

Plants having stomata supplemented by large air tubes may lead a double existence, living first in water, and later on the dried-up bottoms of pond or stream as in *Isoetes* and perhaps *Vallisneria septangulare*, *Elatine*, &c. Is not this principle of the uses of leaves a more complete key to these facts than that of changing currents?

(See in this connection "Designs of some leaf-forms" in the March No. of the *Torrey Bulletin*.)—Aug. F. Foerste, *Dayton, O.*

Recently Introduced Plants in and about Rockford, Ill.—The rapidity with which our thriving western cities run through

the earlier stages of their growth, the quick transition from the informality of the fontier village to the stiff and pretentious urban airs of the prosperous manufacturing and trading town, is not more remarkable than the complete change which takes place in the vegetation covering the vacant lots, rubbish heaps and waste places of these communities. I remember well, for instance, how here in Rockford, Ill., say twenty years ago, the indigenous plants of the prairie and oak-opening sprang up on every side in close proximity to the beaten paths of busy men. The industrious young botanist, collecting for exchange, found his only limitations in the quantity of driers he possessed, and the amount of time, energy and discretion he could bring to the work of using them well. Now we must go miles out into the country for material and count ourselves fortunate, even then, if the little vestige of the native flora which last season afforded us a dozen desirable specimens has not since been swept away by the plow; while in the central portion of the city scarcely a single native species remains to dispute possession with street weeds, mostly of European descent and training.

Lactuca scariola, L., which has spread rapidly over the country along the line of railroads, was limited, with us, for a few years, to a single patch on the embankment east of the station-house, but has now been carried all over the city and out into the country even, by mud containing seeds adhering to carriage wheels. It threatens to become a troublesome weed, especially in gravel walks.

Amarantus blitoides, Watson, also brought in by the railroad (but from the west instead of the east), is just gaining a foothold. It takes kindly to sandy, sunny slopes, and spreads over the ground in dense, lusty patches very like Purslane.

The particular occasion for this note, however, is to record—for the first time I believe—the introduction of *Chenopodium Berlandieri*, Moq., in the states east of the Mississippi and north of the Ohio. This is found, not in patches here and there, but scattered everywhere over vacant lots, under walls and along residence streets, keeping company with *Chenopodium glaucum*, *Artemisia biennis* and the omnipresent *Atriplex*; but unlike the nearly allied *C. album*, showing no tendency to intrude as a weed in cultivated grounds. A rather delicate species—for a pigweed—rarely exceeding 18 inches in height, diffusely branched and usually (when not crowded) declining. From its general diffusion the inference is plain that the importation took place years ago, and it seems very strange that a plant showing such complete adaptation to the environment (it is as much at home in town as *C. urbicum* itself) should not have been reported elsewhere. I am at a loss, indeed, to frame any conjecture as to how it got here—for instance, by seeds in mud sticking to the feet of Texas cattle—which does not involve the puzzling question, then why not all along between St. Louis and Chicago as well? I may as well mention, in conclusion, the fact that in some most unaccountable way, *Kochia scoparia*, Schrad., has been turned loose in

our streets and from its chenopodiaceous character, abundant seeding andthe tenacity with which it holds its own in a fair stand-up fight with the street weeds,bids fair to become thoroughly established. One back street near the gas works, where it grew most abundantly, was regraded last winter, and if the coming summer shows that instead of being destroyed it has only been scattered, I think we may fairly count it in as having come to stay. The plant is as symmetrical in habit, when not crowded, as a young Juniper; the foliage at a distance appears soft and graceful (more so than would be imagined by those who have seen only herbarium specimens), and, above all, presents a light yellowish green color which contrasts prettily with the darker bluish green of its associates.—M. S. Bebb, Rockford, Ill.

Dichogamy of Umbelliferæ.—I am under obligations to Mr. Trelease for his kind correction of my mistake in calling *Umbelliferæ* proterogynous. It was caused by Gray's Manual, page 187: "the styles are protruded from the bud some time before the anthers develop," also by personal observations of *Erigenia bulbosa*, Nutt., the only plant of this order which had been investigated by myself previously to *Pastinaca*. This I consider an unmistakable case of proterogyny. The styles protrude from the just unfolding petals for the length of 1 mm. and have an angular divergence of 1-2 mm. At a later stage the stamens expand, the anthers successively dehisce, and during this period the styles approach each other so as to avoid self-fertilization apparently. Frequently this is not effected, and the styles remain expanded. But where they do close during this period they expand again as the stamens grow effete, gradually recurve, become effete themselves, turn reddish-brown and wither away. The stamens and petals drop off at the last expansion of the styles. The different flowers vary greatly, but this is the type development. Not to fall into any error I examined nearly 500 specimens. Therefore I consider our *Erigenia* to be a proterogynous plant, generally fertilized before the development of anthers, but capable of being fertilized by its own pollen, although this is apparently avoided in the first part of the second or polleniferous stage. The coming together of the styles is often indistinct and ineffectual. Plants left unfertilized can then be fertilized in the third stage by their own pollen or even by that of other plants still, since that would be more effective. But I believe that it does not take long for the styles to become effete and the carpels are apparently fructified before this stage in most cases. Although I have caught during the last 4 days 5 species of Diptera near these plants, I have never seen any at work, although I have looked at hundreds of plants in their native state during the last few days, but the days were stormy and cold. Still, from the presence of nectar in large quantities, I am willing to admit that there may be insects that frequent them. Finally, I am of the opinion (thanks to Mr. Trelease) that this plant (deviating from the family type)

originally proterandrous, became, from want of insects caused by its early appearance, autogamous by synanthesis, and is now again, by the adaptation to new insects, becoming dichogamous, but proterogynous, instead of proterandrous.—AUG. F. FOERSTE.

Mr. Foerste was kind enough to send with the above note dried specimens of *Erigenia*, from which it appears that self-fertilization is quite as probable as in *Hydrocotyle*, but although there is no question about the early elongation of the styles I could not be sure that the stigmas were receptive until dehiscence was nearly complete. From theoretical considerations, one might doubt the protogyny. The development of synacmy in a dichogamous species might readily follow a decrease in the number of visiting insects, but if their number afterward increased and dichogamy were again acquired, the hereditary direction of variation should tend to reproduce the same form of dichogamy that had originally been lost, and that still existed in related species and genera, especially in so uniform an order as the *Umbelliferæ*. Mr. Foerste writes that he has noticed a similar development of the stigmas in species of *Thaspium*. It is to be hoped that those who can obtain *Erigenia* will confirm this observation another season, while *Thaspium* can be examined this year. *Scandix Pecten-Veneris* should have been mentioned with *Hydrocotyle* in my note in the GAZETTE for March, as being self-fertile, possibly through incomplete dichogamy, its self-fertility being, as suggested by Mr. Henslow (Trans. Linn. Soc., 2 ser. Bot., I, 365), correlated with the inconspicuousness of its flowers. *Apium* is also stated by Mr. Darwin (Cross and Self-Fert, 172) to be self-fertile.—WM. TRELEASE.

Notes from the Jour. Royal Micr. Soc., February—L. GUIGNARD finds that the embryo-sac of the Mimoseae (*Acacia retinoides* is taken as the type) is formed in the following manner: At the summit of the nucellus, beneath the epidermis, an axial cell, larger than the adjoining one, divides into two superposed cells, the apical and subapical. The subapical cell enlarges rapidly and becomes segmented horizontally into three superposed cells each equal in size to the mother-cell. Of these, the lowest, the true mother-cell of the embryo-sac, enlarges at the expense of the others and the lateral tissue of the nucellus. Resorption soon commences in the two superposed cells; the nuclei lose their sharp outline and soon disappear, together with the cell-walls; finally the whole substance of these cells is absorbed in the development of the lower mother-cell. This process is subject to variations, but it is always the lower cell which becomes the mother-cell and absorbs the others.

The same worker finds polyembryony not an uncommon phenomenon in the Mimoseæ, especially in *Schrankia uncinata*, in which it is allied with other abnormalities of structure.

E. WARTMANN finds that Spanish chestnuts germinate after an

exposure of nearly two hours to a cold of − 110°, derived from a mixture of sulphuric ether and solid carbonic acid.

E. PRILLIEUX finds that the effect of warmth in the earth is to cause a hypertrophy of the interior of the stem in a young plant; when closely examined this is found to be accompanied by multiplication of the cell nuclei.

D. H. SCOTT, investigating the structure and development of laticiferous vessels, finds that they are developed from rows of cells, the transverse walls of which have been gradually absorbed, and, when two vessels lie side by side, the lateral walls also partially. The resorption usually takes place at an early period; in seedlings during the first stages of germination; in the secondary cortex shortly after the cells in question have separated from the cambium. The connection between distant laticiferous vessels is brought about in two ways; either by rows of cells that run transversely coalescing with each other, or by protuberances which unite in their growth, and which finally form canals similar to those of the *Conjugatæ*. Even before the first septa are absorbed, the cells are characterized by special contents, of which latex is probably a constituent.

A Curious Growth of Coreopsis.—Late in the summer of 1873 I observed a remarkable growth of *Coreopsis*, apparently *C. discoidea*, though the plants were so dwarfed and the floral organs so imperfectly developed that I name the species with much hesitancy.

In what is known as the "Big Woods," eight miles southwest of this place (Wheaton College, DuPage County, Illinois), there occur ponds or swamps, with no natural outlet, and bottoms of tenacious brick clay subsoil, several feet in thickness. These mud ponds or swamps are filled up by the winter and spring rains, but dry out in midsummer. The plants of which I am speaking grew *two feet above the ground* on the stems of Cephalanthus bushes, which were standing in one of those dried-out ponds. Long, slender roots (resembling the stems of Dodder), followed closely the fissures of the Cephalanthus bark down to the soil where they develop normally, thus connecting by a slender thread, as it were, the tuft of green herbage above with the moisture supplying earth below. The best developed plants were found highest up, though all were nearly on the same "horizon." Lower down I could see undeveloped seeds sticking to the bark, some of which had sprouted but failed to grow, apparently for want of moisture.

It seems most likely that the seeds floating on the surface of the water during a season of floods collected around the bushes; that the water remained standing until the time of their germination, and then began to slowly subside, and thus the roots following this retreating source of moisture-supply were led down to the ground.

The plants, as before stated, were very much dwarfed, 4 to 6

inches in height, but branching profusely, with stems varying in size from 1-16 to 1-4 inch in diameter. The roots exhibited little tendency to branch in the downward course, though in some intances dividing once or twice. If lateral fibers were developed they had mostly disappeared.—R. T. MORGAN, *Wheaton, DuPage County, Illinois.*

The Postage on Botanical Specimens.—In his new "*Flora of Washington*," Mr. Ward states that "the law forbids the sending of labels, of which any part is written, as third-class matter, and it is necessary to give each label a temporary number and put with the specimen a corresponding printed figure (cut out of a calendar) and to send the labels in a letter. * * * A very sensible decision was made by Postmaster-General Key that scientific labels, bills of lading, etc., if they contained nothing irrelevant, might pass with the specimens. This ruling has since been reversed as not in harmony with the spirit of the law." The writer adds that he "called personally at the Post-Office Department (Dec. 6, 1881), and was officially assured of the correctness of the statements herein made" (p. 234).

At the instance of some of my students, I applied by letter to the Department, April 25, 1882, for information as to the present ruling, receiving in reply a printed order, dated Feb. 21, 1881, signed by Postmaster-General Maynard. The part relating to botanical specimens reads as follows: "It is ordered that Section 232, Postal Regulations, be revoked, and in lieu thereof the following order is made: Mailable matter of the first-class shall embrace all matter wholly or partially in writing, except as herein provided. * * * The exceptions are as follows: * * * 7. Upon matter of the fourth-class the sender may write his own name and address preceded by the word 'from,' and also the number and names of the articles enclosed. He may also write upon or attach to any such articles, by tag or label, *a* mark *or* number, *name or* letter, for purpose of identification." The italicised words, not italicised in the order, were underscored in the copy sent to me. A knowledge of this fact may spare exchanging botanists some annoyance.—WM. TRELEASE, Madison, Wis.

Ferns of Iowa.—Miss MARY E. WOOD reports the following ferns collected by her on the Makoqueta River, about fifty miles west of Dubuque, Iowa:

Asplenium felix-fœmina, A. thelypteroides, A. angustifolium, Aspidium Goldianum, A. Thelypteris, Adiantum pedatum, Camptosorus rhizophyllus, Cystopteris bulbifera, C. fragilis, Onoclea sensibilis, Osmunda Claytoniana, Phegopteris hexagonoptera, Botrychium ternatum, Pellæa atropurpurea, P. gracilis, Pteris aquilina, Struthiopteris Germanica.

The Exogenous Flora of Lincoln Co., Mississippi, from October to May.—The subjoined list, though very far from exhaustive, is believed to be correct. The times of flowering may represent the somewhat abnormal conditions of the present year. Coming here, the last of September, after the prolonged drought of '81, many plants which should have been flowering were scorched to the ground. The first rain brought out a second bloom of many spring flowers. *Rosaceæ* were especially thus represented. In December, roses, *Viola odorata*, and most of the garden bulbs, *Narcissi* and Hyacinths, were blooming. The exceptionally warm and rainy winter has given place to a spring which old residents pronounce three weeks earlier than usual.

Some geological considerations may also so effect the Flora as to make it not altogether what one would expect in the Pine Barrens. Throughout this sandy region, running between the Pearl river and the first tier of counties east of the Mississippi, until lost in the Yazoo Hills, is a belt of stiff, red clay, with occasional out-croppings of the "Buckshot" soil of north-eastern Mississippi.—MARTHA B. FLINT, *Shelbyville, Kentucky.*

OCTOBER AND NOVEMBER.

Ascyrum stans, Michx.
var. obovatum.
Crux-Andreæ, L.
pumilum, Michx. April.
Hypericum Drummondii, T. & G.
Desmodium humifusum, Beck.
viridiflorum, Beck.
Lespedeza procumbens, Michx.
repens, T. & G.
angustifolia, Gr.
Stylosanthes elatior, Swartz.
Centrosema Virginianum, Benth.
Cassia occidentalis, L.
Chamæcrista, L.
nictitans, L.
var. asper.
Sida spinosa, L.
Abutilon Avicennæ, Gærtn.
Penthorum sedoides, L.
Circæa Lutetiana, L.
Œnothera biennis, L.
Diodia Virginica, L.
teres, Walt.
Vernonia fasciculata, Michx.
Eupatorium perfoliatum, L.
perfoliatum, L.
serotinum, Michx.
aromaticum, L.
Mikania scandens, L.
Conoclinium cœlestinum, L.
Aster sericeus, Vent.
concolor, L.
patens, Ait.
tenuifolius, L.
Chrysopsis graminifolia, Nutt.
gossypina, Nutt.
villosa, Nutt.
Mariana, Nutt.
Pluchea fœtida, DC.
Ambrosia trifida, L.
artemisiæfolia, L.
Xanthium strumarium, L.
Rudbeckia laciniata, L.
hirta, L.
triloba, L.
Helianthus lætiflorus, Pers.
Bidens bipinnata, L.
frondosa, L.
Helenium tenuifolium, Nutt.
Verbascum Thapsus, L.
Blattaria, L.
Conobea multifida, Benth.
Gerardia purpurea, L.
var. fasciculata, Chap.
Cichorium Intybus, L.
Lobelia glandulosa, Walt.
inflata, L.
puberula, Michx.
Ruellia ciliosa, Pursh.
Verbena angustifolia, Michx.
Teucrium Canadense, L.
Isanthus cœruleus, Michx.
Pycnanthemum Tullia, Benth.
Hedeoma pulegioides, Pers.
Leonurus Cardiaca, L.
Leonotis nepetæfolia, Br.
Heliotropium Indicum, B. & H.
Ipomœa Nil, Roth.

adnatus, Nutt.
squarrosus, Walt.
Erigeron Canadense, L.
Diplopappus linariifolius, Hook.
Solidago virgata, L.
rigida, L.
elliptica, L.
tortifolia, Ell.
odora, Ait.
var. inodora.
radula, Nutt.
tenuifolia, Pursh.
Jacquemontia tamnifolia, Griseb.
Cuscuta compacta, Juss.
Physalis angulata, L.
Gentiana ochroleuca, Frœl.
Asclepias incarnata, L., var. pulchra.
Chenopodium Botrys, L.
ambrosioides, L.
var. anthelminticum.
Amarantus paniculatus, L.
retroflexus, L.
Croton capitatus, Michx.
Gelsemium sempervirens, Ait. (Feb.)

JANUARY.

Arabis Ludoviciana, Meyer.
Capsella Bursa-pastoris, Mœnch.
Lepidium Virginicum, L.
Stellaria media, Smith.
pubera, Michx.
Houstonia minima, Beck.
Osmanthus Americana, B. & H.

FEBRUARY.

Ranunculus fascicularis, Muhl.
alismæfolius, Geyer.
repens, L.
pusillus, Poir.
abortivus, L.
sceleratus, L.
Cardamine rhomboidea, DC.
hirsuta, L.
var. sylvatica.
Viola lanceolata, L.
primulæfolia, L.
cucullata, Ait.
var. cordata.
pedata, L.
var. bicolor.
Cerastium nutans, Raf.
Sagina decumbens, Gr.
Oxalis violacea, L.
stricta, L.
Acetosella, L. (rare)
Prunus Caroliniana, Ait.
Americana, Marshall.
Chicasa, Michx.
Amelanchier Canadensis, T. & G., var. [Botryapium.
Veronica serpyllifolia, L.
peregrina, L.
arvensis, L.
Plantago heterophylla, Nutt.
Houstonia cœrulea, L.
Cynthia Dandelion, DC.
Vaccinium tenellum, Ait.
Salvia lyrata, L.
var. obovata.
Brunella vulgaris, L.
Lamium amplexicaule, L.
Gelsemium sempervirens, Ait.
Dichondra repens, Forst.
var. Carolinensis, [Choisy.

MARCH.

Delphinium azureum, Michx.
Liriodendron Tulipifera, L.
Podophyllum peltatum, L.
Nasturtium officinale, L.
sessiliflorum, Nutt.
Polygala nana, DC.
Trifolium Carolinianum, Michx.
pratense, L.
procumbens, L.
Robinia Pseudacacia, L.
Wistaria frutescens, DC.
Desmodium rigidum, DC. (?)
Styrax grandiflora, Ait.
Potentilla Canadensis, L.
var. simplex.
Fragaria Indica, L.
Virginiana, Ehrhart.
Rubus villosus, Ait.
cuneifolius, Pursh.
Houstonia purpurea, L.
Erigeron Philadelphicum, L.
quercifolium, Lam.
Coreopsis grandiflora, Nutt.
Gnaphalium purpureum, L.
Antennaria plantaginifolia, Br.
Senecio lobatus, Pers.
aureus, L.
Cirsium horridulum, Michx.
Krigia Virginica, Willd.
var. dichotoma.
Caroliniana, Nutt.
Bignonia capreolata, L.
Sonchus asper, Vill.
oleraceus, L.
Gaylussacia dumosa, T. & G.
var. hirtella, Gr.
Vaccinium arboreum, Marshall.
stamineum, L.

trivialis, Michx.
Rosa lævigata, Michx.
nitida, Willd.
Cratægus Pyracantha, Pers. (introduced)
apiifolia, Michx.
æstivalis, T. & G.
Pyrus angustifolia, Ait.
Itea Virginica, L.
Liquidambar styraciflua, L.
Œnothera sinuata, L.
var. humistrata, Gr.
linearis, Michx.
Cornus florida, L.
Nyssa multiflora, Wang.
Lonicera sempervirens, Ait.
grata, Ait.
Mitchella repens, L.
Rhododendron nudiflora, L.
Nepeta Glechoma, L.
Scutellaria parvula, Michx.
Phlox pilosa, L.
amœna, Sims.
Melia Azderach, L. (introduced.)
Chionanthus Virginica, L.
Asarum ariifolium, Michx.
Rumex crispus, L.
Morus rubra, L.
Quercus Phellos, L.
virens, L. (rare.)
aquatica, Catesby.
falcata, Michx.
nigra, L.
Fagus ferruginea, Ait.
Ostrya Virginica, Willd.

Astragalus mollissimus, Torr.—A short time ago, my friend, Dr. Isaac Ott of Easton, Penn., received from a stock breeder in Western Kansas, a wild plant, know there by the name of "*loco*," and said to produce injurious and often fatal effects upon cattle and horses who eat it, causing paralysis and other functional disturbances. Dr. O., who is a skillful investigator of poisons and their action upon animal and vegetable organisms, fully confirms the reports of the herdsmen as to the deleterious properties of this plant. At my request, he procured for me specimens with flowers and full-grown pods, and it proved to be *Astragalus mollissimus*, Torr. From the quantity sent, its vigorous growth so early in the season, its strong, deep roots and its numerous, short, thick stems, it is fair to infer that it is at home and abounds in that region.—THOS. C. PORTER.

Equisetum variegatum, Schleich.—Mrs. A. E. Bush, of San Jose, Cal., has sent me specimens of an *Equisetum*, collected at the hills near that city, April 22, which must be referred to the above species. The stalks are densely tufted, and the grooves of the stem vary from 5 to 10, but are commonly 6 or 7; one large stalk had 11. This species is not mentioned in the "Botany of California" and to my knowledge has not been reported from this state hitherto. It appears in Colorado (*Porter* and *Coulter*), and from Ill. to N. H., and northward.—LUCIEN M. UNDERWOOD, *West. Univ., Bloomington, Ill.*

Early Fungi.—I have received to-day from Southern Illinois, through Mr. F. S. Earle, fresh specimens of the following fungi: *Urocystis pompholigodes*, Schl., on *Ranunculus fascicularis; Cystopus candidus*, (Pers.) on *Capsella Bursa-pastoris* and *Peronospora nivea*, Ung., on *Geranium Carolinianum*. They are well developed and in good condition for study, and Mr. Earle tells me the *Cystopus* has been so all winter.—A. B. SEYMOUR, *University of Illinois, Champaign.*